Instructions

Tektronix

P6417 & P6418
Logic Analyzer Probes

071-0567-00

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General Safety Summary

Review the following safety precautions to avoid injury and prevent damage to this product or any products connected to it. To avoid potential hazards, use this product only as specified.

Only qualified personnel should perform service procedures.

While using this product, you may need to access other parts of the system. Read the *General Safety Summary* in other system manuals for warnings and cautions related to operating the system.

Connect and Disconnect Properly. Connect the probe output to the measurement instrument before connecting the probe to the circuit under test. Disconnect the probe input and the probe ground from the circuit under test before disconnecting the probe from the measurement instrument.

Ground the Product. This product is indirectly grounded through the grounding conductor of the mainframe power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded.

Observe All Terminal Ratings. To avoid fire or shock hazard, observe all ratings and markings on the product. Consult the product manual for further ratings information before making connections to the product.

Avoid Exposed Circuitry. Do not touch exposed connections and components when power is present.

Do Not Operate With Suspected Failures. If you suspect there is damage to this product, have it inspected by qualified service personnel.

Do Not Operate in Wet/Damp Conditions.

Do Not Operate in an Explosive Atmosphere.

Keep Product Surfaces Clean and Dry.

Symbols and Terms

Terms in this Manual. These terms may appear in this manual:

WARNING. *Warning statements identify conditions or practices that could result in injury or loss of life.*

CAUTION. *Caution statements identify conditions or practices that could result in damage to this product or other property.*

Terms on the Product. These terms may appear on the product:

DANGER indicates an injury hazard immediately accessible as you read the marking.

WARNING indicates an injury hazard not immediately accessible as you read the marking.

CAUTION indicates a hazard to property including the product.

Symbols on the Product. The following symbols may appear on the product:

CAUTION
Refer to Manual

Preface

This document provides information on using and servicing the P6417 and P6418 Logic Analyzer probes.

Related Documentation

In addition to these probe instructions, the following documentation is available for your TLA 700 Series Logic Analyzer:

- The *TLA 700 Series User Manual* provides overall user information for the TLA 700 Series Logic Analyzer.
- The *TLA 700 Series Installation Manual* provides installation information for the TLA 700 Series Logic Analyzer.
- The online help provides information about the TLA 700 Series user interface and the TLA 700 Programmatic Interface (TPI). To view the online help, select Help Topics from the Help menu.
- A series of instruction manuals for microprocessor support provide operating and service instructions for the individual microprocessor support packages that are available for use with the TLA 700 Series Logic Analyzer.
- The *P6434 Mass Termination Probe Instructions* provides instructions for using the P6434 probes.
- The *TLA 7QS Training Manual* provides training exercises to help you learn key features of the TLA 700 Series Logic Analyzer. The training manual is designed to be used with the TLA 700 Series QuickStart training board.
- The *TLA 700 Series Performance Verification and Adjustment Technical Reference Manual* provides performance verification and adjustment procedures for the major components of the TLA 700 Series Logic Analyzer. The manual includes the performance verification and adjustment software.
- A series of service manuals that provide board-level service information for major components of the TLA 700 Series Logic Analyzer.

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Product Support	For questions about using a Tektronix measurement product, call toll free in North America: 1-800-833-9200 6:00 a.m. – 5:00 p.m. Pacific time Or contact us by e-mail: support@tek.com For product support outside of North America, contact your local Tektronix distributor or sales office.
Service Support	Contact your local Tektronix distributor or sales office. Or visit our web site for a listing of worldwide service locations. www.tektronix.com
Toll-free Number	In North America: 1-800-833-9200 An operator will direct your call.
Postal Address	Tektronix, Inc. P.O. Box 500 Beaverton, OR. 97077 USA

Operating Basics

This section provides a brief description of the P6417 and P6418 logic analyzer probes, information on attaching and using color-coded probe labels, and information on connecting the probes from the logic analyzer to the target system.

Product Description

The P6417 and P6418 logic analyzer probes connect a Tektronix TLA series logic analyzer to a target system. Each probe consists of 16 data channels and one clock/data channel. You can connect the probes to the target system through the podlet connectors or through the lead sets.

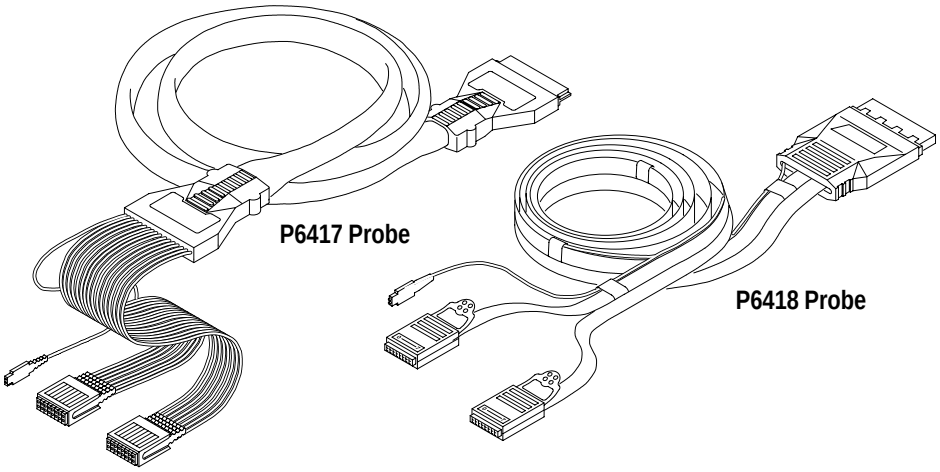


Figure 1: P6417 and P6418 logic analyzer probes

Attaching Probe Labels

When you purchase the logic analyzer probes with the logic analyzer module, all labels are already attached. If you purchase the probe separate from the logic analyzer module, you should apply the color-coded labels as described in this section. The labels help you identify the probe connections at the logic analyzer end and at the target system end.

Table 1 lists the probe section and label color combinations. Refer to Table 1 and to Figure 2 when you attach the probe labels.

Table 1: Probe section and label combinations

Probe section	Channels	Label color	Probe section	Channels	Label color
A3-A2	CK:0, A3:7-0, A2:7-0	Tan	A1-A0	CK:1, A1:7-0, A0:7-0	Orange
D3-D2	QUAL:0, D3:7-0, D2:7-0	Blue	D1-D0	CK:2, D1:7-0, D0:7-0	Yellow
C3-C2	CK:3, C3:7-0, C2:7-0	White	C1-C0	QUAL:1, C1:7-0, C0:7-0	Gray
E3-E2	QUAL:3, E3:7-0, E2:7-0	Green	E1-E0	QUAL:2, E1:7-0, E0:7-0	Violet

P6417 Labels

Refer to Figure 2 and use the following steps to attach the probe labels:

1. Identify the module end of the probe cable.
2. From the sheet of labels, locate the color-coded label for the module end of the probe cable.

NOTE. *When you install the labels on the P6417 probe, make sure that you select the correct label for module end of the probe. The labels that connect to both ends of the probe look similar, but differ in information content. Refer to Figure 2 to ensure you have selected the correct label.*

3. Attach the matching colored label to the area on the other end of the probe cable.

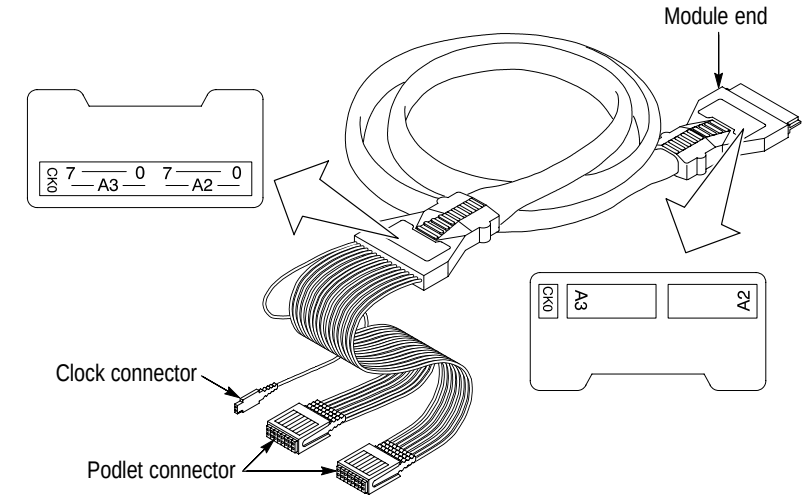
P6418 Labels

Refer to Figure 2 and use the following steps to attach the probe labels:

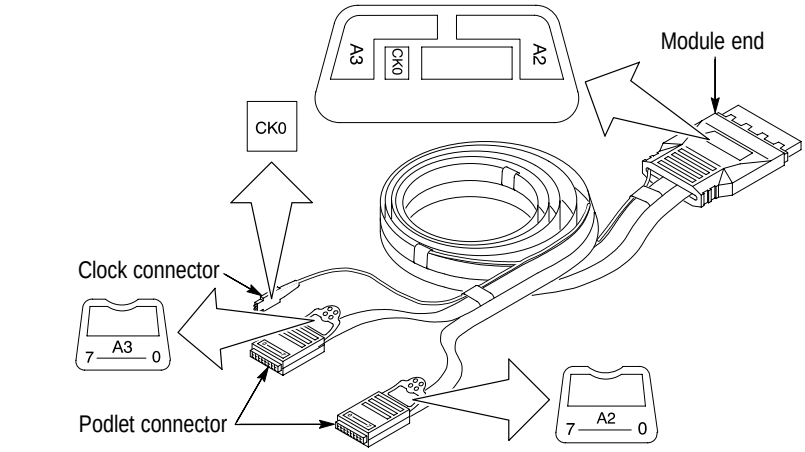
1. From the sheet of labels, locate the color-coded labels.
2. Install the correct label on the module end of the probe.
3. Locate the two labels for the podlet connectors, and attach a label on each connector of the probe.

NOTE. *Make sure that you attach the labels to the correct podlet connector. For example, make sure that the A3 section at the podlet connector aligns with the A3 section of the module end of the probe. The podlet connector adjacent to the clock podlet has the higher-numbered channel group (if necessary, lay the probe out on a flat surface so you can trace the channel groups from the module end of the probe to the podlet connector end).*

4. Attach the matching colored label to clock connector.



P6417 Probe



P6418 Probe

Figure 2: Attaching probe labels

Connecting the Probes

Connect the logic analyzer probes and the optional retaining brackets as shown in Figure 3. The retaining brackets and hardware ship with the logic analyzer (note that the P6417 probe does not require screws to hold the retainer bracket).

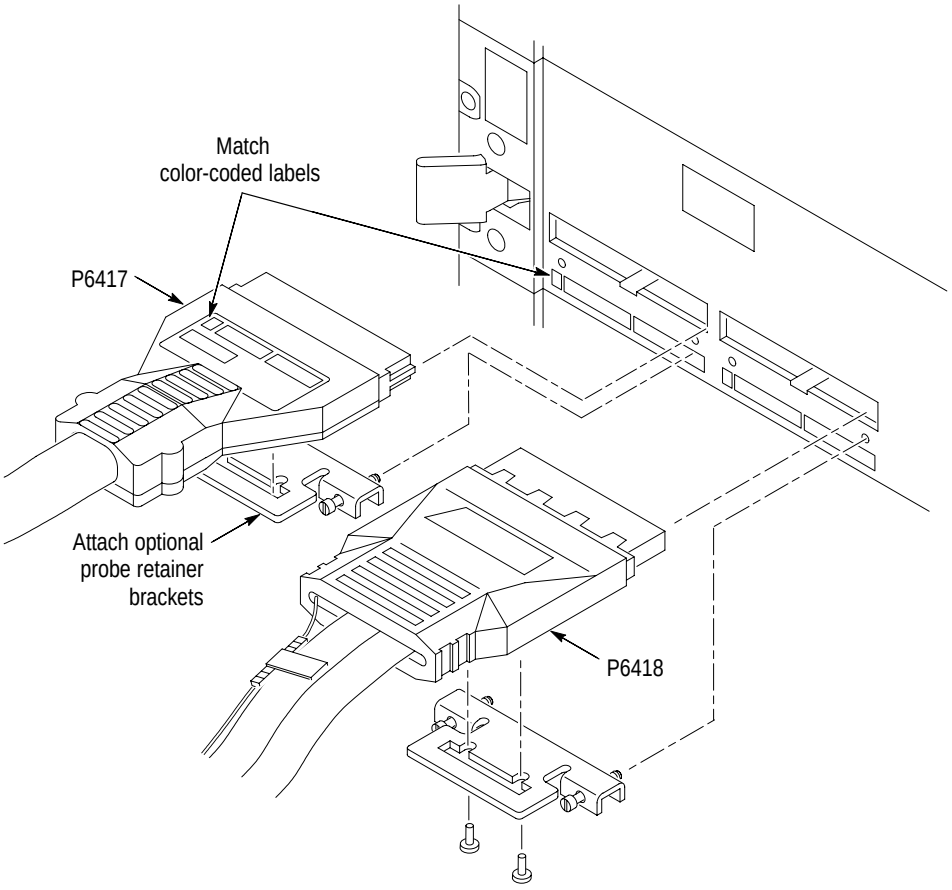


Figure 3: Connecting the logic analyzer probes

Refer to Figure 4 and connect the probe to the target system using one of the following methods:

- Connect the probes directly to square pins on the target system (refer to *Probe Connectors* on page 7 for information on probe dimensions).
- Connect the probes to the target system via the flying lead sets.
- Use the probe tip connectors with the flying lead sets for situations where you cannot connect to square pins directly.

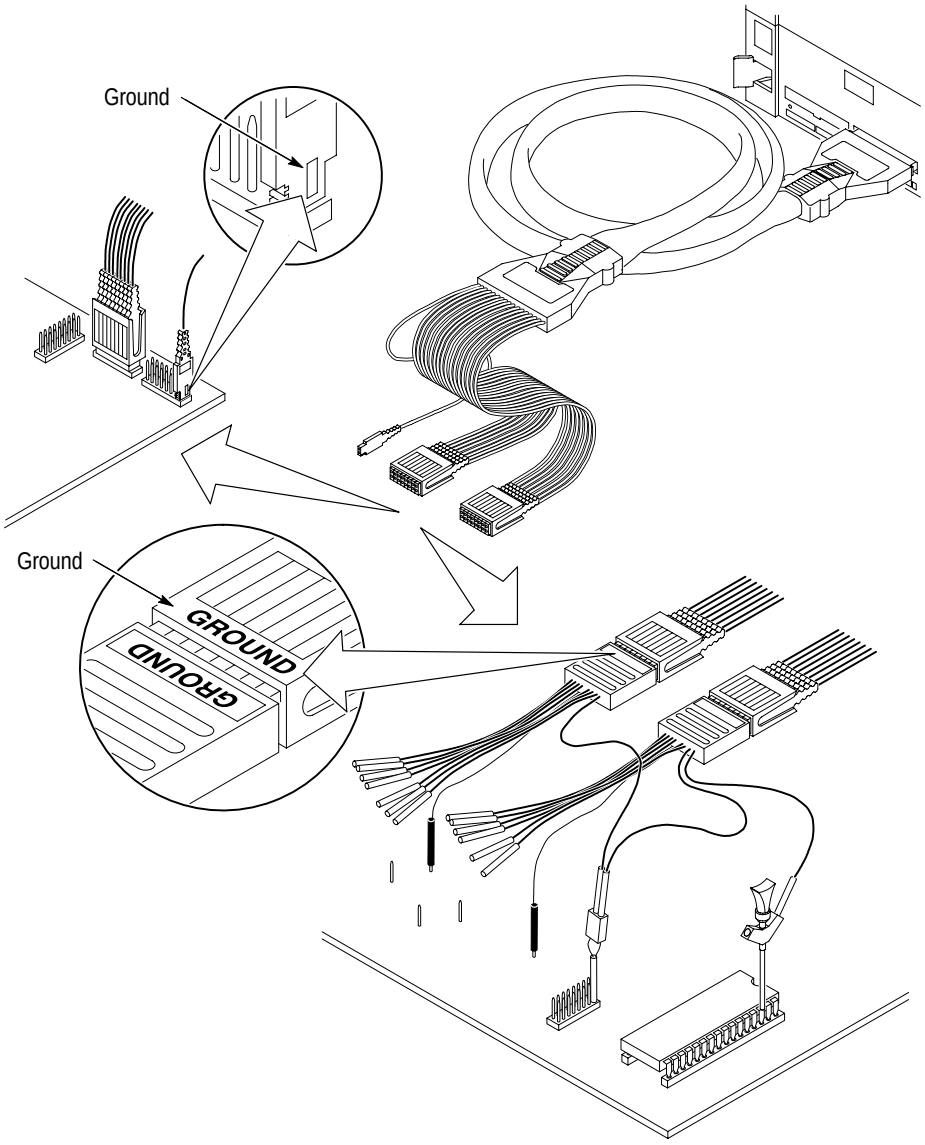


Figure 4: Connecting the probes to the target system

Note the location of the ground connections for the probe.

- The individual podlets have ground (GND) engraved on the podlet.
- The podlet connectors have ground engraved on one side of the connector and numbers on the other side.
- When you use the 8-channel lead sets, the ground lead is a single, black connector. Make sure you connect the ground side of the 8-channel lead set to the ground side of the 8-channel podlet holder.

Reference

This section provides reference information and specifications for the P6417 and P6418 probes.

Probe Connectors

Figure 5 shows the dimensions of the probe footprints for both the P6417 and P6418 probes.

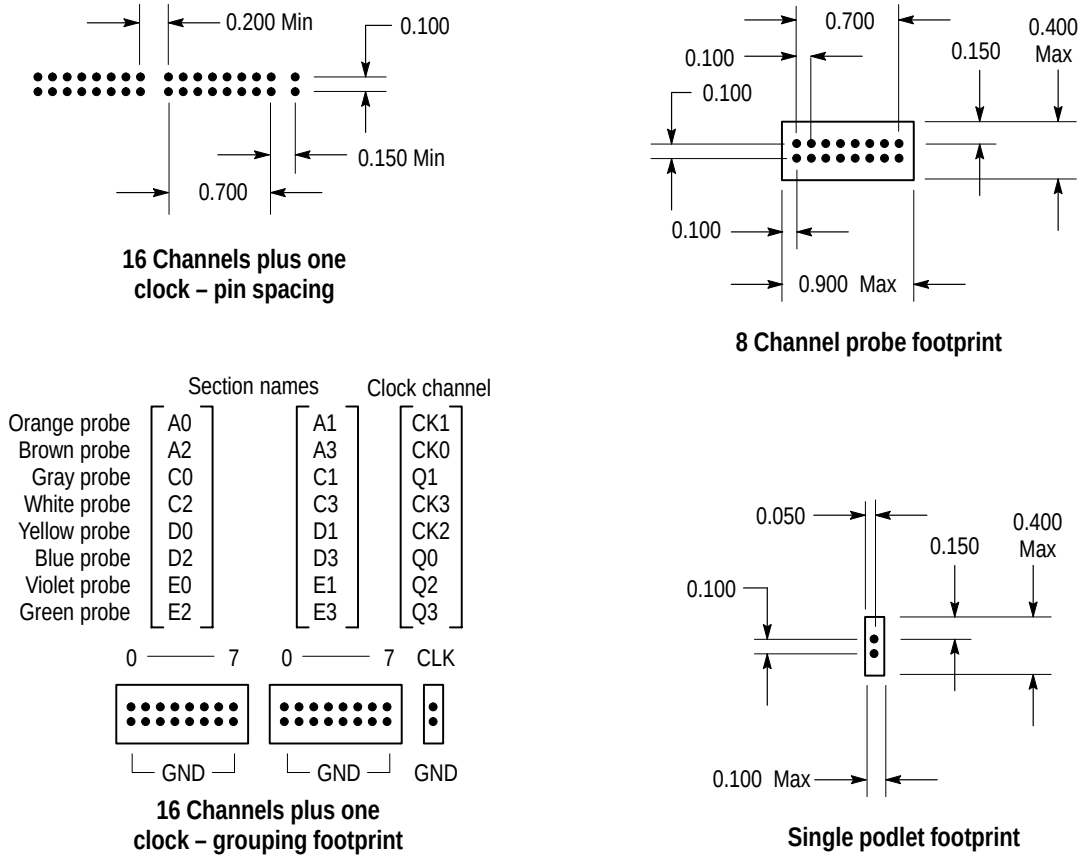


Figure 5: Probe footprints

Figure 6 shows the vertical clearance for the both probes.

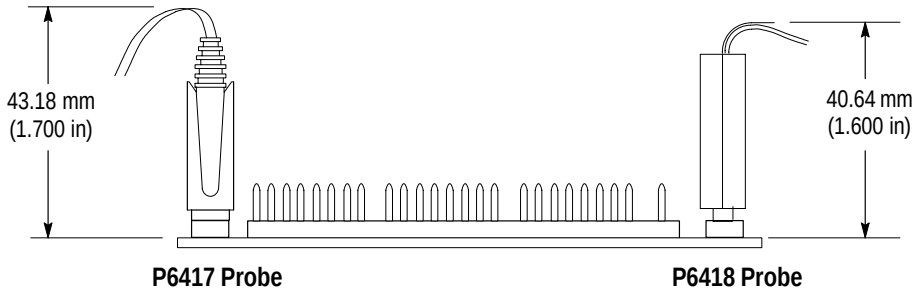


Figure 6: Probe podlet clearance

Loading and Equivalent Circuits

Figure 7 shows the equivalent circuits for the purposes of estimating the loading of probes on the target system.

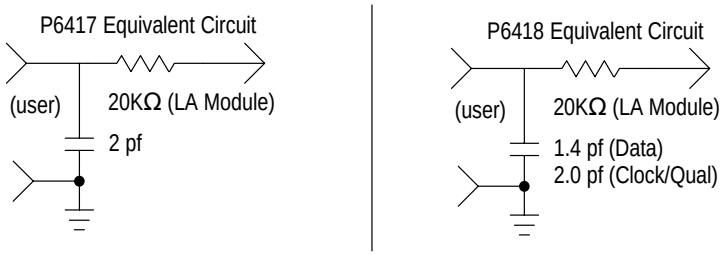


Figure 7: Probe loading

Specifications

Table 2 lists the electrical and mechanical specifications for the P6417 and P6418 probes. The electrical specifications apply when the probe is connected between a compatible logic analyzer and a target system. All specifications apply to both types of probes unless otherwise indicated.

Table 2: Electrical and mechanical specifications

Characteristic	Description	
Threshold accuracy	± 100 mV	
Channel-to-channel-skew	≤ 1 ns	
Input resistance	20 KΩ	
Input capacitance	**P6417**	**P6418**
Data	2.0 pF typical	1.4 pF typical
Clock/Qual	2.0 pF typical	2.0 pF typical
Minimum slew rate	0.2 ns	
Maximum operating signal	6.5 V_{P-P} –3.5 V absolute input voltage minimum 6.5 V absolute input voltage maximum	
Maximum nondestructive input signal to probe	± 15 V	
Minimum input pulse width signal	2 ns	
Delay from probe tip to module input connector	7.33 ns	
Probe length	1.8 m (6 ft)	

Table 3 shows the environmental specifications for both probes. The probes are designed to meet Tektronix standard 062-2847-00 class 5.

Table 3: Environmental specifications

Characteristic	Description
Temperature	
Maximum operating	+50° C (+122° F)
Minimum operating	0° C (+32° F)
Non-operating	–55° C to +75° C (–67° F to +167° F)
Humidity	10 to 95% relative humidity
Altitude	
Operating	4.5 km (15,000 ft) maximum
Non-operating	15 km (50,000 ft) maximum
Electrostatic immunity	The probe is not static sensitive

Maintenance

The P6417 and P6418 Probes do not require scheduled or periodic maintenance. Use the procedures listed under *Functional Check* to check the basic functionality of the probes.

To verify that the probes meet or exceed the performance requirements for published specifications with a compatible logic analyzer module, refer to the *TLA 700 Series Performance Verification and Adjustment Procedures* and follow the procedures listed under *LA Module Performance Verification*.

Functional Check

The following procedure checks the basic operation of the probes by verifying that the probes recognize signal activity at the probe tips.

Equipment required	Adjustment/verification fixture and power supply (refer to *Replaceable Parts* for part number information)
Prerequisites	P6417 or P6418 probe connected to LA Module Test equipment connected as shown in Figure 8

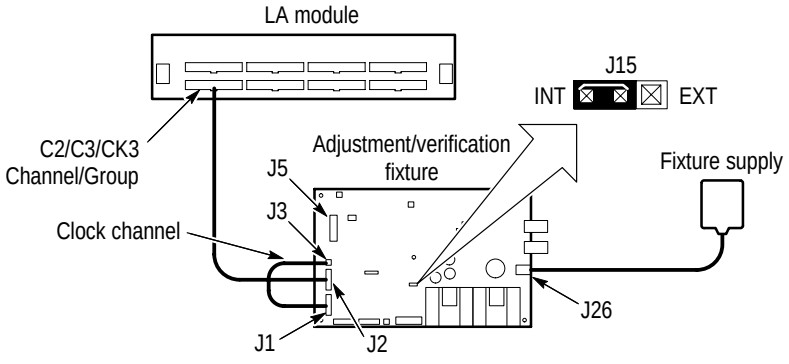


Figure 8: Probe functional verification test setup

Perform the following steps to complete the probe functional verification procedure:

1. Ensure that the jumper at J15 on the adjustment/verification fixture is in the INT position to select the internal 50.065 MHz clock.
2. Open the Setup window for the LA module which will be used to test the probes.
3. Click the Set Thresholds button to display the Probe Threshold dialog box.
4. Adjust the threshold level to 700 mV for all channels.
5. Connect the acquisition probe to be tested to the C3/C2 channel group on the LA module.
6. Refer to Figure 8 and connect the podlets of the acquisition probe to J1 and J2 on the adjustment/verification fixture. Ensure that you connect the ground side of the podlets to the ground side of the adjustment/verification fixture connectors.
7. Connect the single clock (CK n) or the qualifier (Q n) channel to one of the J3 CLK OUT connector pairs on the adjustment/verification fixture.
8. Return to the Setup window and click the Show Activity button to display the Activity Monitor.
9. Verify that the Activity Monitor shows activity on all probe channels connected to the test fixture.

   Figure 9 shows an example of the Activity Monitor. Note the signal activity for clock CK3 and data channels for the C3(7-0) and C2(7-0) groups. Also note that there is no activity on the other groups because the probe podlets are not connected to a signal source (the channels are all high).

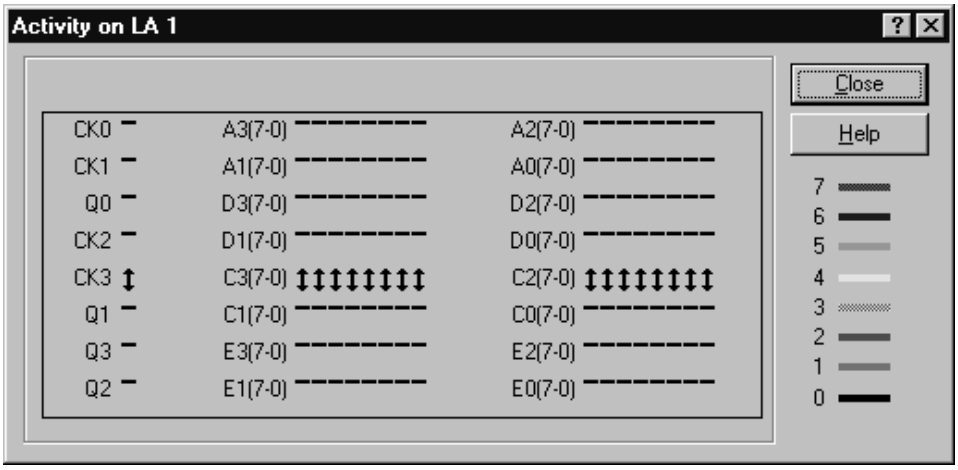


Figure 9: Activity Monitor

10. Disconnect the probe from the adjustment/verification fixture and LA module.
11. Repeat steps 5 through 10 for any remaining probes.
12. Close the Show Activity window.
13. Return the threshold levels to their former values in the Probe Threshold window.
14. This completes the probe functional verification procedure.

Inspection and Cleaning

To maintain good electrical contact, keep the probes free of dirt, dust, and contaminants. Remove dirt and dust with a soft brush. For more extensive cleaning use only a damp cloth. Never use abrasive cleaners or organic solvents.

P6418 Probe Service Procedures

The P6418 probes contain no user-replaceable parts. If probe failures occur, replace the entire probe.

Replacing Podlets on the P6417 Probes

You can reposition or replace the individual P6417 Probe podlets, depending on your application. Use the following procedures to move or replace the podlets.

Moving P6417 Probe Podlets

Depending on your application, you can reposition probe podlets as shown in Figure 10. When moving podlets in the podlet holder keep the ground side of the podlets together.

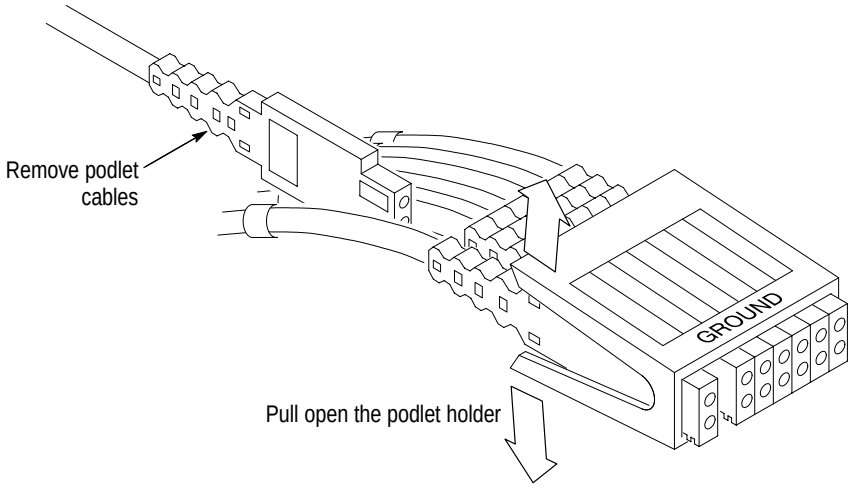


Figure 10: Moving probe podlets

Replacing Probe Podlets

The podlet replacement procedure consists of identifying the faulty podlet and replacing it with a new one. Refer to the *Replaceable Parts* section for information on ordering the podlet replacement kit.

Equipment and Required Material. You will need the following equipment and material:

- Replacement podlet
- Masking tape
- Small diagonal cutters
- Screwdriver with a #1 Phillips tip

Replacement Procedure. Perform the following steps to replace a faulty probe podlet:

1. Identify and mark the faulty podlet.
2. Disconnect the probe from the logic analyzer and set the probe cable on a clean working surface.

***NOTE**. If you need to replace more than one podlet, replace the podlets one at a time to avoid mixing them up.*

3. Using the screwdriver with the #1 Phillips tip, remove the four screws on the probe housing on the module end of probe cable (see Figure 11).

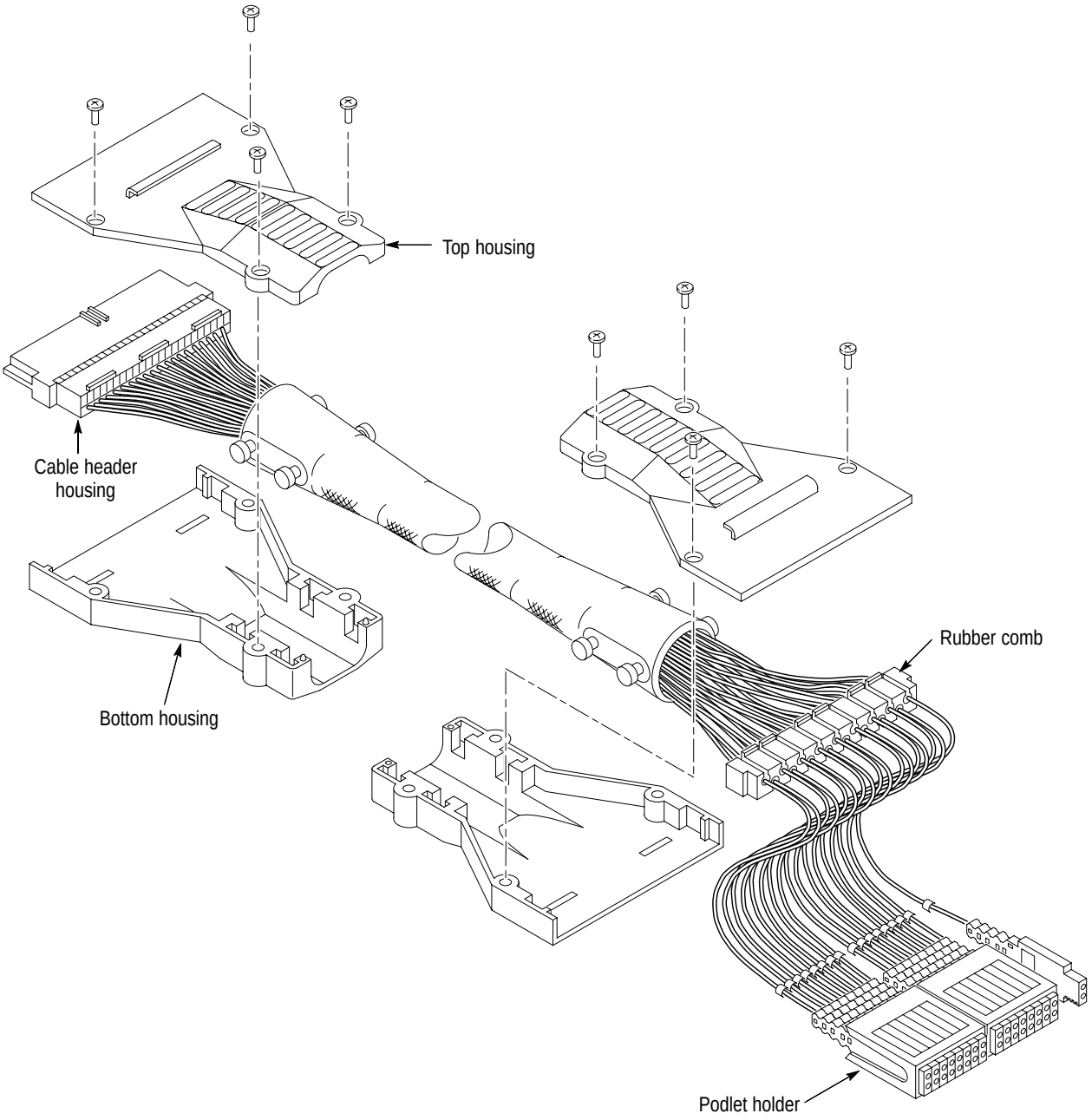


Figure 11: Disassembling the probe cable

4. Remove the top and bottom probe housings and set them aside. Do not mix the probe connector-end housings with the podlet connector housings; the labels are different at each end of the probe.

5. Identify the faulty probe channel at the module end of the cable.

6. Refer to Figure 12 and use a small, pointed tool, such as a straightened paper clip or a mechanical pencil, to release the faulty cable from the cable header housing. Discard the small plastic retaining snap.

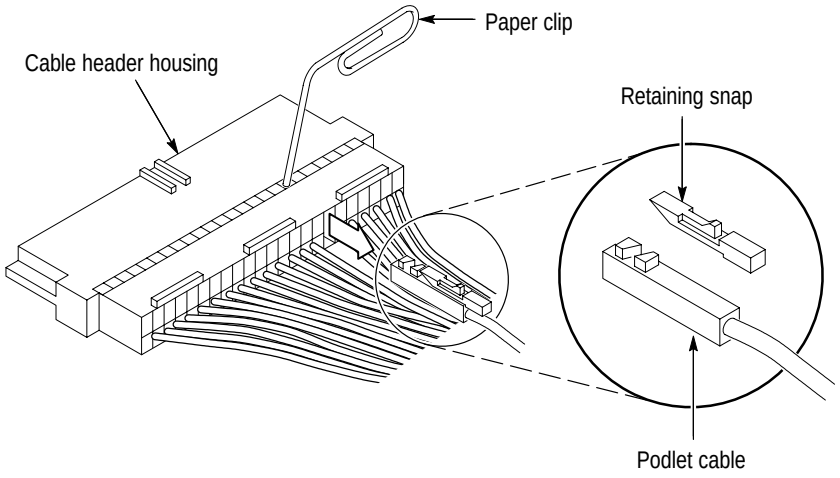


Figure 12: Removing the faulty channel from the probe cable header housing

7. Identify the faulty probe channel at the podlet end of the probe.

CAUTION. *Be sure that you have identified the correct podlet cable before you cut the cable.*

8. Cut the faulty podlet just above the color-coded ring.

9. Remove the color-coded ring and set it aside; you will need to install it on the replacement cable later in this procedure.

10. Refer to Figure 13 and bend the rubber comb to remove the faulty podlet cable from the comb.

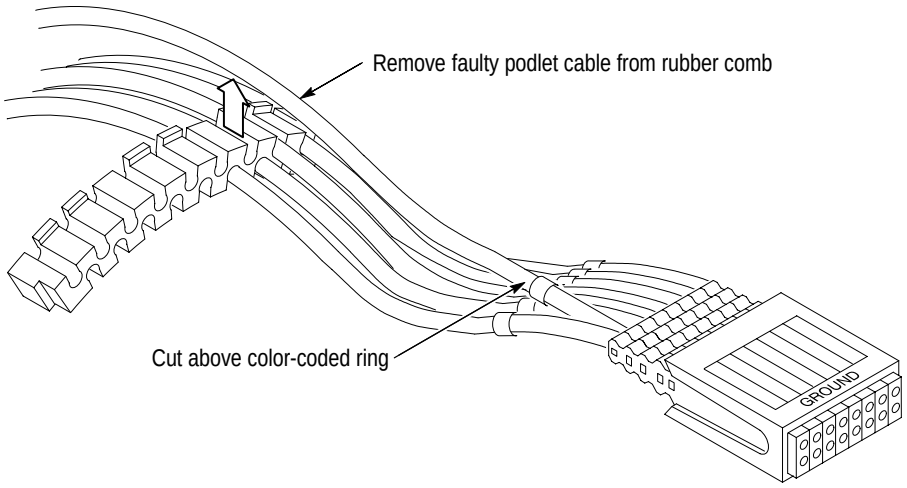


Figure 13: Removing a podlet cable from the rubber comb

11. Attach the module end of the replacement podlet cable to the cut end of the faulty podlet cable in the following manner:

a. Lay the two cables in parallel with a four-inch (10 cm) to six-inch (15 cm) overlap.

b. Wrap the overlapping portion of the two podlet cables tightly with masking tape to temporarily splice them together.

12. Pull the faulty cable from the module end through the mesh sleeve so that the replacement cable is drawn through the mesh sleeve. Stop pulling when the replacement cable is located at the proper position in the cable wire bundle.

13. Remove the faulty podlet cable from the podlet holder and replace it with the new cable as shown in Figure 14.

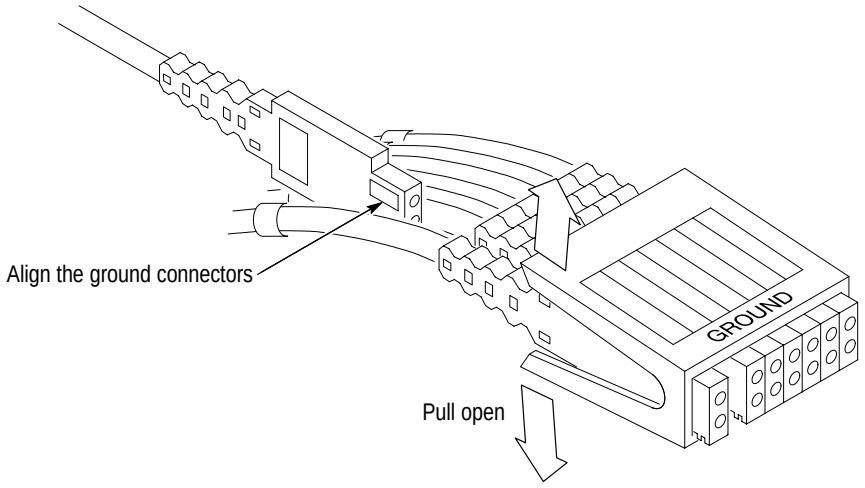


Figure 14: Replacing a podlet in the podlet holder

14. Take the color-coded ring that you removed in step 9 on page 16 and slide it onto the installation tool. (The installation tool is included in the podlet replacement kit.)

CAUTION. *Do not damage the cable with the installation tool when installing the color-coded ring.*

15. Refer to Figure 15 and place the installation tool over the replacement podlet cable as shown. Slide the color-coded ring down the installation tool onto the replacement cable. Position the ring so that it is in the same relative position as the other color-coded rings (approximately 0.5-inch from the podlet).

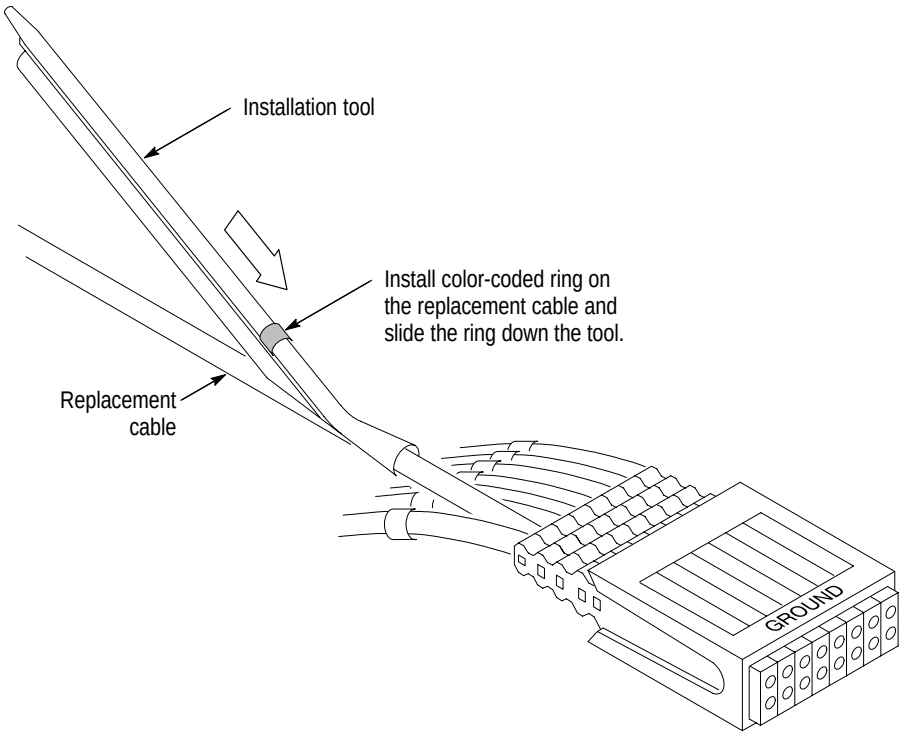


Figure 15: Installing the color-coded ring

16. Push the new podlet cable into the rubber comb.

17. Unwrap and remove the masking tape from the splice of the two cables and discard the faulty cable.

18. Remove the protective 1x2 housing from the new podlet cable. Use the same procedure as in Step 6 on page 16 to remove the plastic retaining snap. Discard the retaining snap and the protective housing.

19. Insert the new podlet cable partially into the cable header housing. Place a new retaining snap (included with the kit) on the podlet cable as shown in Figure 16 and fully insert the cable and retaining snap into the cable header housing. Tug lightly on the podlet cable to ensure the retaining snap is in place.

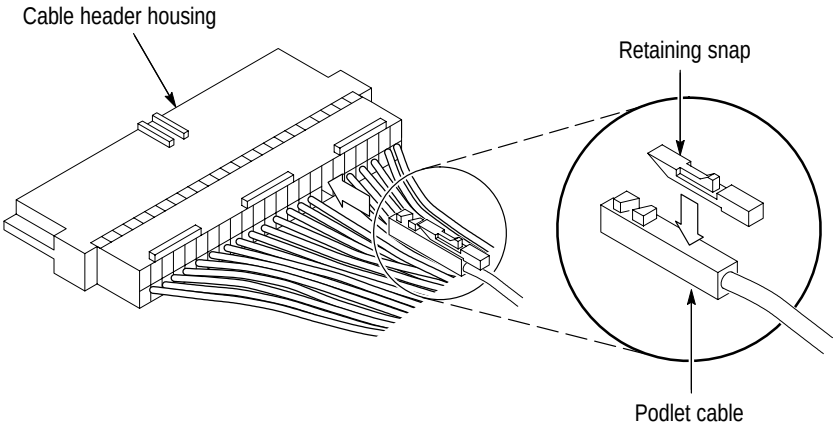


Figure 16: Installing the cable in the cable header housing

20. Reinstall the top and bottom probe housings on the module end of the probe cable in the following manner (refer to Figure 11 on page 15, if necessary):

a. Line up the two tabs on the probe header with the two embedded slots in the bottom (deep) probe housing.

NOTE*. It may be necessary to push or pull the cables in the sleeve so that the probe header lines up properly with the slots in the bottom probe housing.*

b. Place the two metallic guides on the probe sleeve in the slots in the bottom probe housing.

c. Line up the three tabs of the probe header with the three embedded slots in the top probe housing.

d. Install and tighten the four screws in the probe housing.

e. Smooth the sleeve by hand to ensure the sleeve fully covers the cables when replacing the probe housing over the comb.

21. Repeat step 20 to install the probe housing over the rubber comb on the podlet end of the probe cable.

Repackaging Instructions

If at all possible, use the original packaging to ship or store the probes. If the original packaging is not available, use a corrugated cardboard shipping carton. Add cushioning material to prevent the probes from moving around in the shipping container.

Enclose the following information when shipping the probe to a Tektronix Service Center:

- The owner’s address
- Name and phone number of a contact person
- Type of probe
- Reason for Returning
- A Complete description of the service required

Seal the shipping carton. Mark the address of the Tektronix Service Center and your own return address on the shipping carton in two prominent locations.

Replaceable Parts

Parts Ordering Information

Replacement parts are available through your local Tektronix field office or representative.

Changes to Tektronix products are sometimes made to accommodate improved components as they become available and to give you the benefit of the latest improvements. Therefore, when ordering parts, it is important to include the following information in your order:

- Part number
- Instrument type or model number
- Instrument serial number
- Instrument modification number, if applicable

If you order a part that has been replaced with a different or improved part, your local Tektronix field office or representative will contact you concerning any change in part number.

Using the Replaceable Parts List

This section contains a list of the mechanical and/or electrical components that are replaceable for your Tektronix product. Use this list to identify and order replacement parts. The following table describes each column in the parts list.

Parts list column descriptions

Column	Column name	Description
1	Figure & index number	Items in this section are referenced by figure and index numbers to the exploded view illustrations that follow.
2	Tektronix part number	Use this part number when ordering replacement parts from Tektronix.
3 and 4	Serial number	Column three indicates the serial number at which the part was first effective. Column four indicates the serial number at which the part was discontinued. No entries indicates the part is good for all serial numbers.
5	Qty	This indicates the quantity of parts used.

Parts list column descriptions

Column	Column name	Description
6	Name & description	An item name is separated from the description by a colon (:). Because of space limitations, an item name may sometimes appear as incomplete. Use the U.S. Federal Catalog handbook H6-1 for further item name identification.
7	Mfr. code	This indicates the code of the actual manufacturer of the part.
8	Mfr. part number	This indicates the actual manufacturer's or vendor's part number.

Abbreviations

Abbreviations conform to American National Standard ANSI Y1.1–1972.

Mfr. Code to Manufacturer Cross Index

The table titled Manufacturers Cross Index shows codes, names, and addresses of manufacturers or vendors of components listed in the parts list.

Manufacturers cross index

Mfr. code	Manufacturer	Address	City, state, zip code
0GV90	GLOBTEK INC	186 VETERANS DRIVE	NORTHVALE, NJ 07647–2303
0KB01	STAUFFER SUPPLY CO	810 SE SHERMAN	PORTLAND, OR 97214–4657
TK0JL	CHROMA ATE INC	43 WU–CHUAN ROAD WU–KU INDUSTRIAL PARK	WU–KU, TAIPEI HSIEN, TAIWAN CN
23633	RICHEY ELECTRONICS INC	7441 LINCOLN WAY	GARDEN GROVE, CA 92641
80009	TEKTRONIX INC	14150 SW KARL BRAUN DR PO BOX 500	BEAVERTON, OR 97077–0001

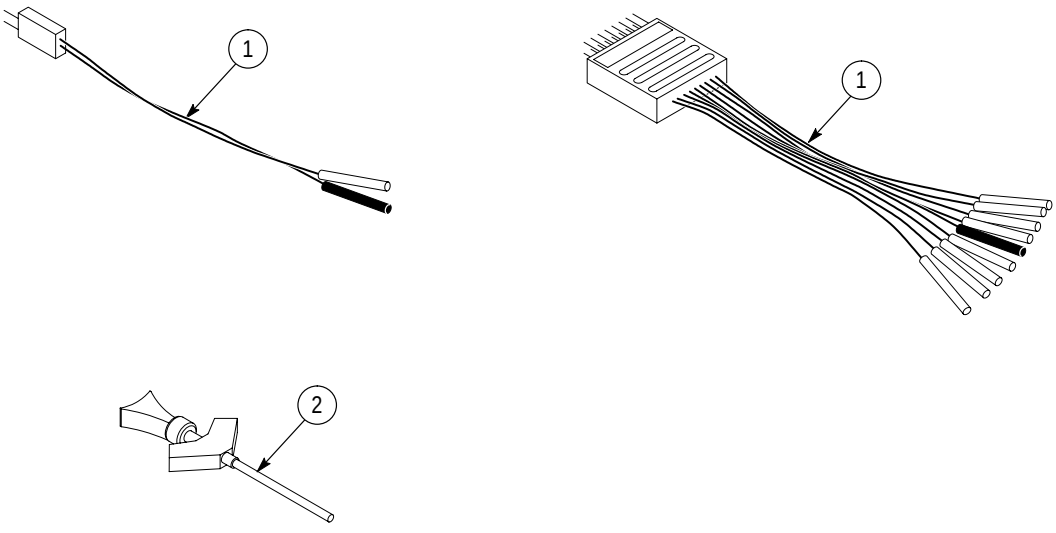


Figure 17: P6417 and P6418 Probe accessories

Replaceable parts list

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
					P6417 STANDARD ACCESSORIES		
–	010–6417–10			1	PROBE SET:17 CH PROBE	80009	010–6417–10
–	071–0567–00			1	MANUAL,TECH:INSTRUCTIONS, P6417 & P6418	80009	071–0567–00
–	334–9239–00			1	MARKER,IDENT:PROBE,METIS, EIGHT SETS OF TWO	80009	334–9239–00
17–1	196–3459–00			1	CA ASSY,SP:DESCRETE, TWO 8-CH LEAD SETS & ONE 1-CH LEADSET	80009	196–3459–00
–2	206–0364–00			20	TIP,PROBE:MICROCKT TEST,0.05 CTR	80009	206–0364–00
					P6418 STANDARD ACCESSORIES		
19–1	010–6418–10			1	PROBE SET:17 CH PROBE	80009	010–6418–10
–	071–0567–00			1	MANUAL,TECH:INSTRUCTIONS, P6417 & P6418	80009	071–0567–00
–	334–9979–00			1	MARKER,IDENT:PROBE,METIS, EIGHT SETS OF FOUR	80009	334–9979–00
17–1	196–3459–00			1	CA ASSY,SP:DESCRETE, TWO 8-CH LEAD SETS & ONE 1-CH LEADSET	80009	196–3459–00
–2	206–0364–00			20	TIP,PROBE:MICROCKT TEST,0.05 CTR	80009	206–0364–00
				1	**PROBE ACCESSORIES KIT FOR P6417 (020–2198–XX)**		
17–1	196–3459–00			1	CA ASSY,SP:DESCRETE, TWO 8-CH LEAD SETS & ONE 1-CH LEADSET	80009	196–3459–00
–2	206–0364–00			20	TIP,PROBE:MICROCKT TEST,0.05 CTR	80009	206–0364–00
					34CH PROBE INTERFACE KIT (020–2199–XX)		
17–1	196–3459–00			2	CA ASSY,SP:DESCRETE, TWO 8-CH LEAD SETS & ONE 1-CH LEADSET	80009	196–3459–00
–	012–1377–00			1	LEAD SET,ELEC:2,26 AWG,STRD,2.030 L,PKG OF 12	23633	66156
–	012–1378–00			1	LEAD SET,ELEC:4,22 AWG,STRD,2.33 L (PKG OF 4)	23633	66155
–	020–3000–XX			1	**34CH PROBE INTERFACE KIT**	80009	020–3000–XX
–	012–1412–00			4	LEAD SET ASSY:LAPIKPV	23633	68654
–	012–1426–00			1	LEAD SET,ELEC:PKG OF 12,2 TO 1 SIGNAL/GROUND	23633	69025
–	012–1427–00			1	LEAD SET,ELEC:PKG OF 4,4 TO 1 SIGNAL/GROUND	23633	69026

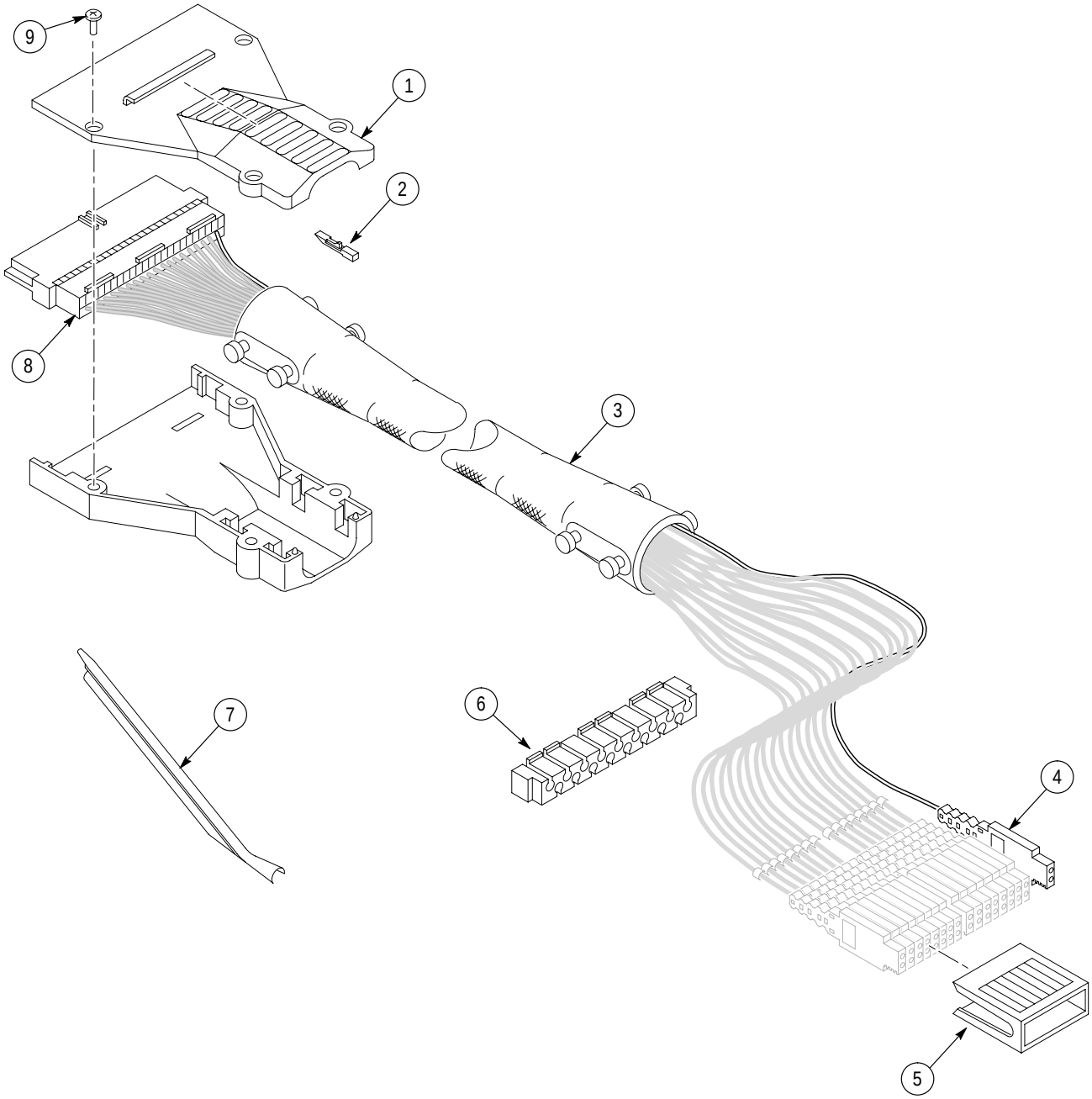


Figure 18: P6417 Probe exploded view

Replaceable parts list

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
				1	**P6417 PODLET REPLACEMENT KIT (020–2200–XX)**		
18–2				10	PODLET LATCHES		
–4				1	PODLET (INCLUDING CABLE)		
–5				2	8-CHANNEL PODLET HOLDERS		
–7					INSTALLATION TOOL & PODLET COLOR-CODED BANDS		
				1	**P6417 PROBE REPAIR KIT (020–2196–XX)**		
18–1				2	PROBE CASE HALVES WITH SCREWS		
–3				1	PROBE SLEEVE (CABLES NOT INCLUDED)		
–5				2	8-CHANNEL PODLET HOLDERS		
–6				1	PODLET CHANNEL COMB		
–7					INSTALLATION TOOL & PODLET COLOR-CODED BANDS		
–8				1	2X17 HEADER CONNECTOR		

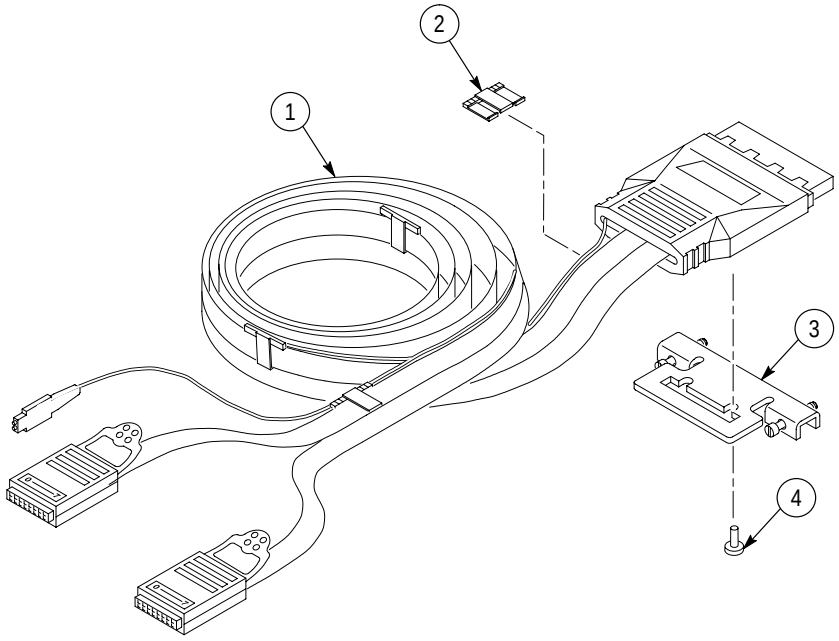


Figure 19: P6418 Probe exploded view

Replaceable parts list

Fig. & index number	Tektronix part number	Serial no. effective	Serial no. discont'd	Qty	Name & description	Mfr. code	Mfr. part number
					P6417 & P6418 OPTIONAL ACCESSORIES		
–	071–0266–XX			1	MANUAL,TECH:SERVICE,TLA7LX/TLA7MX SERIES LOGIC ANALYZER MODULE	80009	071–0266–XX
–	071–0265–XX			1	MANUAL,TECH:USER,TLA700 SERIES LOGIC ANALYZER	80009	071–0265–XX
–	071–0264–XX			1	MANUAL,TECH:INSTALLATION,TLA700 SERIES	80009	071–0264–XX
–	071–0267–XX			1	MANUAL,TECH:SERVICE,TLA714 PORTABLE MAINFRAME	80009	071–0267–XX
–	071–0268–XX			1	MANUAL,TECH:SERVICE,TLA720 BENCH TOP CHASSIS	80009	071–0268–XX
–	071–0269–XX			1	MANUAL,TECH:SERVICE,TLA720,BENCHTOP CONTROLLER	80009	071–0269–XX
–	070–9776–XX			1	MANUAL,TECH:TECHNICAL REFERENCE,TLA700 SERIES PERFORMANCE VERIFICATION AND ADJUSTMENT	80009	070–9776–XX
–	020–2018–00			1	ACCESSORY KIT:MINI PV HOUSING,15 HOUSING,VARIOUS SIZES	23633	PER TEK DOCUMENTATION
–	671-3599-01			1	ADJUSTMENT/VERIFICATION TEST FIXTURE (NOT SHOWN)	80009	671-3599-01
–	119–4855–00			1	POWER SUPPLY (US):18W,WALL MOUNT,120VAC 60HZ INPUT,12VDC 1.5A OUTPUT,UNREGULATED,183CM CABLE,STR C (NOT SHOWN)	0GV90	WD1E1500C12CP
–	119–4856–00			1	POWER SUPPLY (EC):18W,WALL MOUNT,220VAC 50HZ INPUT,12VDC 1.5A OUTPUT,UNREGULATED,183CM CABLE,STR C (NOT SHOWN)	0GV90	WD13E1500C12CP
–	119–4859–00			1	POWER SUPPLY (JP):18W,WALL MOUNT,100VAC 60HZ INPUT,12VDC 1.5A INPUT,UNREGULATED,183CM CABLE,STR CO (NOT SHOWN)	0GV90	WD49E1500C12CP
19–2	016–1784–00			1	CABLE MANAGERS; KIT OF FIVE (P6418 ONLY)	80009	016–1784–00
–3	407–4435–01			1	BRACKET,SUPPORT1.2MM THK CRS,LOGIC ANALYZER PROBE,SATIN NICKEL PL	TK0JL	407–4435–01
–4	211–0292–00			2	SCR,ASSEM WSHR 4–40 X 0.29,PNH,BRS NI PL,POZ MACHINE (P6418 ONLY)	0KB01	211–0292–00